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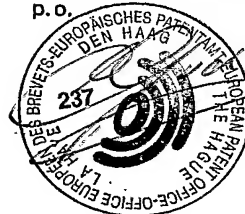
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C. v.d. Aa-Jansen

Patentanmeldung Nr.  
Patent application no.  
Demande de brevet n°

PCT/EP 04/003670

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**Anmelder:**  
**Applicant(s):**  
**Demandeur(s):**

1. BIC-VIOLEX - Anixi, Greece
2. PSIMADAS, Yiannis, Marios - Athens, Greece (US only)
3. BOZIKIS, Yiannis - Koukaki-Athens, Greece (US only)

**Bezeichnung der Erfindung:**

**Title of the invention:**  
**Titre de l'invention:**

Razor having two slideable shaving heads

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**Remarques:**

Further applicants:

4. EFTHIMIADIS, Dimitris - Athens, Greece (US only)

Razor having two slideable shaving headsField of the invention

The invention relates to safety razors and, more  
5 specifically, to razors provided with two shaving heads.

Background of the invention

Several attempts have been made to propose a razor  
including at least two shaving heads having different  
sizes to allow shaving of different hair areas of the  
10 body.

US patent No. 4,461,078 granted to Carreker discloses  
a razor assembly including first and second handle  
portions, with first and second razor heads mounted at the  
ends of the handle portions. The handle portions are  
15 pivotally mounted together so that the heads may be moved  
from a position wherein the handle portions are  
substantially in a straight line with the heads widely  
spaced, to a position wherein the handle portions make a  
small acute angle with the heads close to each other.

20 US patent No. 4,285,124 granted to Diakonov discloses  
a safety razor comprising a normal sized razor head and a  
retractable miniature razor head which is movable from a  
first position where it is retracted behind the normal  
sized head to a second position where it is deployed above  
25 the normal sized head for use in trimming the area beneath  
the center of the user's nose.

One disadvantage of such razors is that the use  
thereof is not perfectly safe. The user has to be very  
cautious in order not to cut himself or herself with one  
30 razor head while using the other.

A further disadvantage of Carreker's razor is that its  
handle is near twice as long as a standard razor handle,  
which makes it difficult to grip comfortably the handle.

Summary of the invention

35 It is an object of the invention to provide a razor  
having two shaving heads, the use of which is safer.

It is another object of the invention to provide a razor, the use of which is more comfortable.

The razor according to the invention comprises:

- 5       - an elongated hollow handle having a longitudinal axis, said handle having a front end and a back end opposite to the front end,
- 10       - a first razor head and a second razor head, both mounted onto a support which is mounted in the handle and is slideable with respect of the same along a direction substantially parallel to the handle axis, between at least:
  - 15           - a first use position in which said first razor head projects outward from the front end of the handle to allow shaving, while the second razor head is lodged within the handle, and
  - a second use position in which said second razor head projects outward from the back end of the handle to allow shaving, while the first razor head is lodged within the handle,
- 20       - a manually operable actuator mounted on the support for moving the same from one position to the other.

Accordingly, while the one head is in use position, the other is substantially out of reach, thereby decreasing the risk that the user cut himself or herself.

25       The razor according to the invention is also compact, which allows comfortable gripping while shaving.

According to a preferred embodiment, the support is capable of occupying a third or intermediate position in which both razor heads are lodged within the handle.

30       The razor may comprise means for locking said support in its first use or second use or intermediate position.

Such locking means may be at least partly provided onto said manually operable actuator.

The actuator preferably comprises a hollow body and a

pusher provided with pins capable of being clipped in slots provided in the handle. The pusher is slideable with respect of the body, between a locking position in which the pins are received in the slots, and an unlocking position in which the pins are located outward from the slots.

The razor preferably comprises a compression spring which permanently biases the pusher toward its locking position.

Furthermore, the handle may comprise two longitudinal ribs which slidably cooperate with the support so as to guide it during movement.

The razor heads preferably have different sizes, in order to allow shaving of different hair areas of the body. Also, each razor head may consist in a removable cartridge.

The above and other objects and advantages of the invention will become apparent from the detailed description of preferred embodiments of the invention, considered in conjunction with the accompanying drawings.

#### Brief description of the drawings

Figure 1 is a perspective view of a razor according to a preferred embodiment of the invention, shown in a first extreme position.

Figure 2 is a perspective view of the razor of figure 1, shown in an intermediate position.

Figure 3 is a perspective view of the razor of figures 1 and 2, shown in a second extreme position.

Figure 4 is an elevation axial cut view of the razor of the preceding figures.

Figure 5 is a perspective top view showing the inside of the razor of the preceding figures.

Figure 6 is a perspective bottom view showing the inside of the razor of the preceding figures.

Figure 7 is a perspective exploded transversal cut

view of the razor of the preceding figures.

At last, figure 8 is a perspective assembled transversal cut view of the razor of the preceding figures.

5 A razor according to the invention is indicated generally by reference number 1 in the drawings.

Razor 1 comprises a handle 2 which has a substantially parallelepipedic shape and is elongated along a longitudinal axis X. Handle 2 is hollow so that it forms a  
10 housing.

Razor 1 comprises a first shaving blade unit or head 3, comprising one or more blades and which is mounted at an open front end 4 of the handle 2 so that the edges of the blades are substantially perpendicular to the handle  
15 axis X.

First head 3 is movable with respect of the handle 2 along a direction substantially parallel to the handle axis X, between:

- a use position in which the head 3 projects outward  
20 from the front end 4 of the handle 2 (figure 1), and
- a retracted position in which the head 3 is lodged within the housing which is formed by the handle 2 (figure 2).

In the use position, the first head 3 is ready for use  
25 to allow shaving, while in the retracted position it is hidden in the handle 2 so that it is inoperable and substantially unreachable with the fingers to be protected from damage and avoid any accidental cutting.

As illustrated on figure 3, razor 1 also comprises a  
30 second blade unit or head 5 comprising one or more blades and which is mounted at an open back end 6 of the handle 2 opposite to the front end 4 so that the edges of the blades are substantially perpendicular to the handle axis X. In other words, first head 3 and second head 5 are  
35 parallel.

The heads 3, 5 preferably have different sizes, the first one 3 having a standard width  $W_3$  while the second one 5 has a width  $W_5$  which is less than  $W_3$  (see figures 1 and 3).

5        Standard head 3 is used in normal shaving (beard, legs), while the narrow one 5 is dimensioned for easy maneuverability to facilitate accurate trimming of particular hair areas, e.g. moustaches or pubic hairs.

10        As the broad head 3, the narrow head 5 is movable with respect of the handle 2 along a direction parallel to the handle axis X, between:

- a use position in which the narrow head 5 projects outward from the back end 6 of the handle 2 (figure 3), and
- 15        - a retracted position in which the narrow head 5 is lodged within the housing formed by the handle 2 (figure 1).

20        In the use position, the narrow head 5 is ready for use to allow shaving, while in the retracted position it is hidden in the handle 2 so that it is inoperable and unreachable with the fingers to be protected from damage and avoid any accidental cutting.

25        Both heads 3 are mounted on a common support 7 which is in turn mounted in the handle 2 and slideable with respect of the same, between:

- a first use position (figure 1) in which the broad head 3 is in its use position while the narrow one 5 is in its retracted position,
- a second use position (figure 3) in which the broad head 3 is in its retracted position while the narrow one 5 is in its use position, and
- 30        - an intermediate position in which both shaving heads 3, 5 are in their retracted position (figure 2).

As illustrated on figure 4, handle 2 comprises a base



member 8 and a cover member 9 which are permanently attached to one another and together enclose the sliding support 7. Figure 5 is a perspective top view of the razor from which the cover member 9 has been partly removed to show the inside of the razor 1. Figure 6 is, in turn, a perspective bottom view of the razor 1 from which the base member 8 has been partly removed to show the inside of the razor 1.

As illustrated in figures 5 and 6, the support 7 consists in an elongated plate member and has the same curvature as the handle 2, which, in the illustrated example, has an arcuate shape to provide comfortable holding. In such a case, the handle axis X can be considered as an average line joining the middle of the ends 4, 6 of the handle 2.

As illustrated in figure 5, the handle 2 is provided with means for guiding the sliding support 7, which comprise two parallel elongated bottom ribs 10, 11 projecting from a bottom surface 12 of the base member 8, and extending along each lateral side 13, 14 of the support 7.

The guiding means also comprise two parallel elongated top ribs 15, 16 projecting from a top surface 17 of the cover member 9, extending on each lateral side of two elongated pins 18, 19 projecting from a top surface 20 of the support 7.

As illustrated on figures 7 and 8, the bottom ribs 10, 11 are provided with shoulder surfaces 21, 22 which together form a seat on which a bottom surface 23 of the support 7 abuts and with respect of which the support 7 is capable of sliding. On the other hand, the pins 18, 19 have top end surfaces 24, 25 which abut and slide against the internal top surface 17 of the cover member 9.

Accordingly, the support 7 is precisely slidably guided between the base member 8 and the cover member 9.

The razor 1 further comprises a manually operable actuator 26 which is slideable with respect of the cover member 9 along a direction substantially parallel to the handle axis X, for moving the support 7 from one position  
5 to the other.

As illustrated in figure 5, the actuator 26 mounted on the sliding support 7 and comprises a cylindrical hollow body 27 which has two projecting parallel flexible flanges 28, 29 passing through apertures 30, 31 in the support 7.  
10 The flanges 28, 29 are provided with lugs 32, 33 which engage the bottom surface 23 of the support 7 so that the slider 26 is clipped on the support.

The body 27 of the slider 26 passes through an elongated aperture 34, which is provided in the cover member 9 between the top ribs 15, 16. The slider 26 also  
15 has a head 35 which projects, at one end of the body 27 opposite to the flanges 28, 29, from a top external surface 36 of the cover member 9.

As illustrated in figure 5, the head 35 comprises a  
20 recess 37 for receiving a finger (e.g. the thumb) of a user to help him grip the actuator 26.

The actuator 26 also comprises a pusher 38 which is slidably mounted in the body 27 along a transversal axis Y substantially perpendicular to the handle axis X. Pusher  
25 38 has a cylindrical body 39 mounted in a corresponding cylindrical bore 40 provided in the body 27 of the slider 26. Body 39 has a top rounded end 41 projecting from the recess 37 to be accessible for a user's finger.

Pusher 38 also comprises, on the side opposite to the  
30 top end 41, diametrically opposed pins 42, 43 which project radially from the body 39, and which are received in a transversal slot 44 provided in the sliding support 7 between the apertures 30, 31.

Pusher 38 is slideable with respect of the body 39  
35 along the transversal axis Y, between a locking position

in which the pusher 38 is at a distance from the support 7, the top end 41 projecting from the recess 37, and an unlocking position in which the pusher 38 is close to the support 7, the top end 41 being substantially received within the bore 40.

As illustrated in figures 4 and 7, the pusher 38 is hollow and comprises a cylindrical internal bore 45 which opens on the bottom side of the pusher 38 between the pins 42, 43 (i.e. toward the support 7). Correspondingly, the support 7 is provided with a cylindrical hole 46 coaxial with the bore 45.

A compression spring 47 is mounted in the bore 45. Spring 47 has a bottom end 48 which abuts against a bottom end surface 49 of the hole 46, and a top end 50 which abuts against a top end surface 51 of the bore 45, so that the spring 47 permanently biases the pusher 38 to the locking position.

As illustrated in figure 6, each top rib 15, 16 is provided with three spaced apart slots, in which pins 42, 43 are capable of being received, depending on the position of the slider 27, i.e. a front end slot 52a, located on the side of the front end 4, a back end slot 52b, located on the side of the back end 6, and an intermediate slot 52c, located between the front end slot 52a and the back end slot 52b.

As illustrated in figure 6, in the intermediate position of the actuator 7, the pins 42, 43 are received in the intermediate slots 52c of the ribs 15, 16. In this position, both shaving heads 3, 5 are received within the handle 2.

As the spring 47 biases the pusher 38 to the locking position, the pins 52c abut against the sides of the intermediate slots 52c, thereby preventing the support 7 to move longitudinally.

Whenever the user wants to take out any of the shaving

heads 3, 5, he squeezes the pusher 38 against the action of the spring 47.

When the pins 42, 43, which act as locking means, are released from the intermediate slot 52c, the user is  
5 capable of sliding the actuator 26 in each direction with respect of the handle 2 so as to move the support 7 toward the first or the second use position.

During movement of the support 7 toward any of the first or second use positions, the pins 42, 43 slide onto  
10 the top ribs 15, 16, thereby holding the pusher 38 in its unlocking position (figure 8).

As soon as the pins 42, 43 come in front of the front end slot 52a, the spring 47 suddenly moves the pusher 38 toward its locking position, where the pins 42, 43 are  
15 clipped in the front end slots 52a, thereby locking the support 7 in its first use position (figure 1).

Respectively, as soon as the pins 42, 43 come in front of the back end slot 52b, the spring 47 suddenly moves the pusher 38 toward its locking position, where the pins 42,  
20 43 are clipped in the back end slots 52b, thereby locking the support 7 in its second use position (figure 3).

Accordingly, whichever the position of one head 3, 5 is, it is strongly held in position with respect of the handle 2. Therefore, there is low risk that a head  
25 accidentally moves from one position to the other. There is low risk that a user cuts himself or herself with one head while shaving with the other.

The shaving heads 3, 5 may be permanently attached to the support 7, so that as soon as the edges are dulled the  
30 entire razor 1 is disposed of.

However, in a preferred embodiment, each shaving head 3, 5 consists in a replaceable cartridge which is removably attached to the support so that after the edges are dulled only the cartridges 3, 5 are disposed of and  
35 replaced by new ones.

Buttons 53 are provided on the sides of the handle 2, near the ends thereof, to facilitate replacement of the cartridges.

Replacing a cartridge is achieved as follows: first, 5 slide the support 7 so as to move the dulled head 3 or 5 toward its use position.

Second, press the buttons 53 to release the cartridge. The buttons may comprise a pin which pushes a flange provided on the cartridge, said flange being clipped into 10 a recess in the support.

At last, replace the cartridge by clipping a new one onto the support 7.

In the above recited embodiment, both front end 4 and back end 6 are permanently open, so as to allow free 15 movement of the wide head 3 and narrow head 5, respectively.

However, in optional embodiments, front end 4 and back end 6 may be at least partially and/or temporarily covered by cover members.

20 In a first optional embodiment, the razor is provided with movable flaps which are slidingly mounted on the handle under control of the actuator, between:

- a closed position in which each flap covers a corresponding end of the handle, so as to prevent 25 manual access to the blades and protect the inside of the handle (especially against dust), and
- an open position in which each flap uncovers the corresponding end, so as to allow the razor head to project outward from the end.

30 In a second optional embodiment, the razor is provided with manually removable lids which are mounted onto the ends of the handle whenever the corresponding razor heads are in retracted position, so as to prevent manual access to the blade and protect the inside of the handle. As soon 35 as the user needs to use one of the razor heads, he simply

has to remove the corresponding lid.

In a third optional embodiment, each end of the razor handle is provided with a flexible terminal wall (e.g. made of thermoelastic or rubber material) which allows the  
5 corresponding razor head to pass through when moving from its use position to its retracted position, and vice-versa.

For instance, this terminal wall is provided with a central slot through which the corresponding razor head is  
10 able to pass while distorting the wall. The terminal wall forms a shield which prevents manual access to the blades and protects the inside of the handle, especially against dust.

## CLAIMS

5        1.        Razor (1) comprising:

- an elongated hollow handle (2) having a longitudinal axis (X), said handle having a front end (4) and a back end (6) opposite to the front end (4),
- a first razor head (3) and a second razor head (5),  
10       both mounted onto a support (7) which is mounted in the handle (2) and is slideable with respect of the same along a direction substantially parallel to the handle axis (X), between at least:
  - a first use position in which said first razor head  
15       (3) projects outward from the front end (4) of the handle (2) to allow shaving, while the second razor head (5) is lodged within the handle (2), and
  - a second use position in which said second razor head (5) projects outward from the back end (6) of  
20       the handle (2) to allow shaving, while the first razor head (3) is lodged within the handle (2),
- a manually operable actuator (26) mounted on the support (5) for moving the same from one position to the other.

25       2.        Razor (1) according to claim 1, wherein the support (7) is capable of occupying a third or intermediate position in which both razor heads (3, 5) are lodged within the handle (2).

30       3.        Razor according to claim 1, further comprising means (38, 42, 43, 52a, 52b) for locking said support (7) in its first or second use position.

4.        Razor according to claim 2, further comprising means (38, 42, 43, 52c) for locking said support (7) in its intermediate position.

5. Razor according to claim 3 or claim 4, wherein said locking means (38, 42, 43, 52a, 52b, 52c) are at least partly provided onto said manually operable actuator (26).

5 6. Razor according to claim 5, wherein said actuator (26) comprises a hollow body (27) and a pusher (38) provided with pins (42, 43) capable of being clipped in slots (52a, 52b, 52c) provided in the handle (2), and wherein said pusher (38) is slideable with respect of the  
10 body (27), between a locking position in which the pins (42, 43) are received in the slots (52a, 52b, 52c), and an unlocking position in which the pins (42, 43) are located outward from the slots (52a, 52b, 52c).

7. Razor according to claim 6, further comprising a  
15 compression spring (47) which permanently biases the pusher (38) toward its locking position.

8. Razor according to any of claims 1-7, wherein said handle (2) comprises two longitudinal ribs (10, 11; 15, 16) which slidingly cooperate with the support (7) so  
20 as to guide it during movement.

9. Razor (1) according to any of claims 1-7, wherein the razor heads (3, 5) have different sizes.

10. Razor (1) according to any of claims 1-8, wherein each razor head (3, 5) consists in a removable  
25 cartridge.

11. Razor (1) according to any of claims 1-9, further comprising a movable or flexible cover covering each end of the handle when the corresponding razor head is lodged within the handle.



## RAZOR HAVING TWO SLIDEABLE SHAVING HEADS

### ABSTRACT

Razor (1) comprising:

- a handle (2) having an axis (X) and comprising a front end (4) and a back end (6),
- first and second razor heads (3, 5), both mounted onto a support (5) which is mounted in the handle (2) and is slideable with respect of the same along the handle axis (X), between:
  - a first use position in which said first razor head (3) projects outward from the front end (4) of the handle (2), while the second razor head (5) is lodged within the handle (2), and
  - a second use position in which said second razor head (5) projects outward from the back end (6) of the handle (2), while the first razor head (3) is lodged within the handle (2),
- a manually operable actuator (26) mounted on the support (7) for moving the same from one position to the other.

FIGURE 1

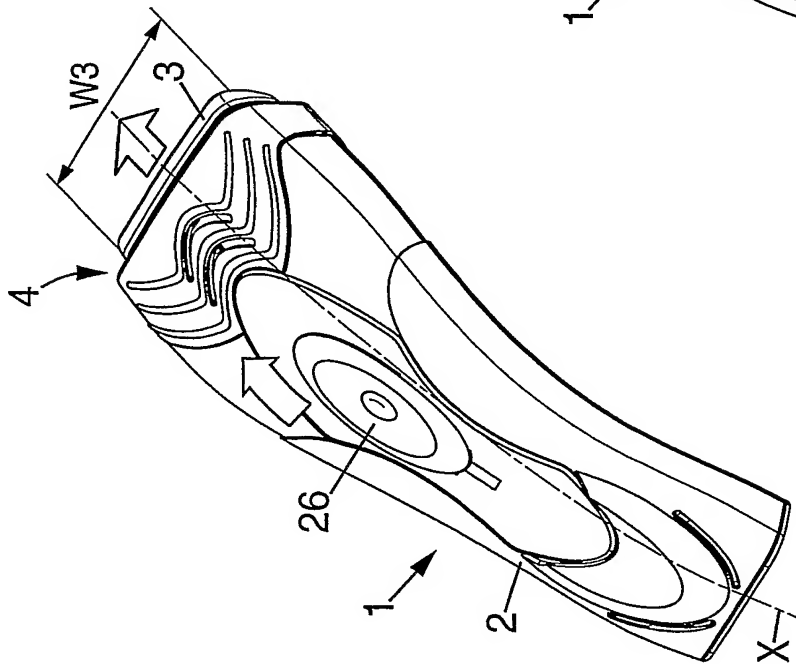


FIG. 1

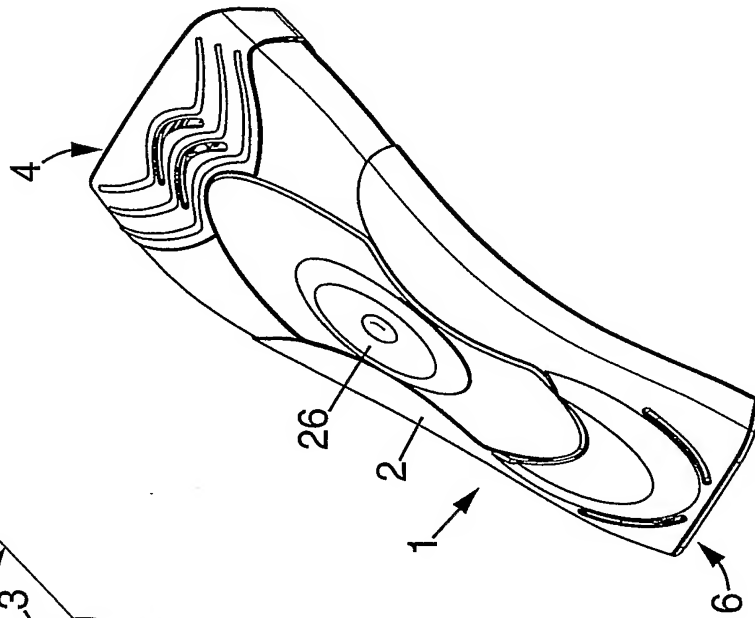


FIG. 2

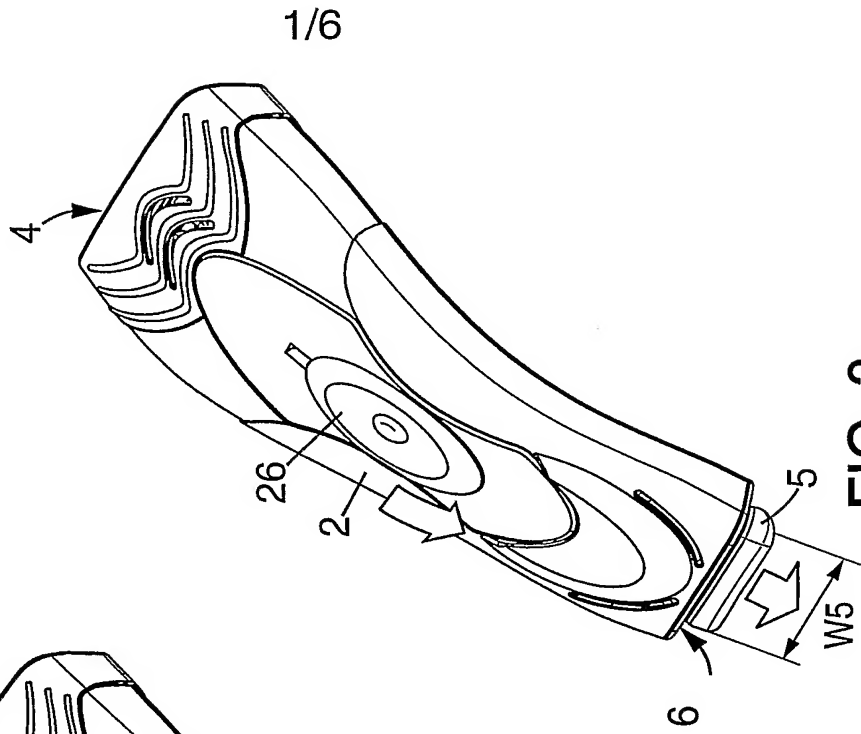


FIG. 3

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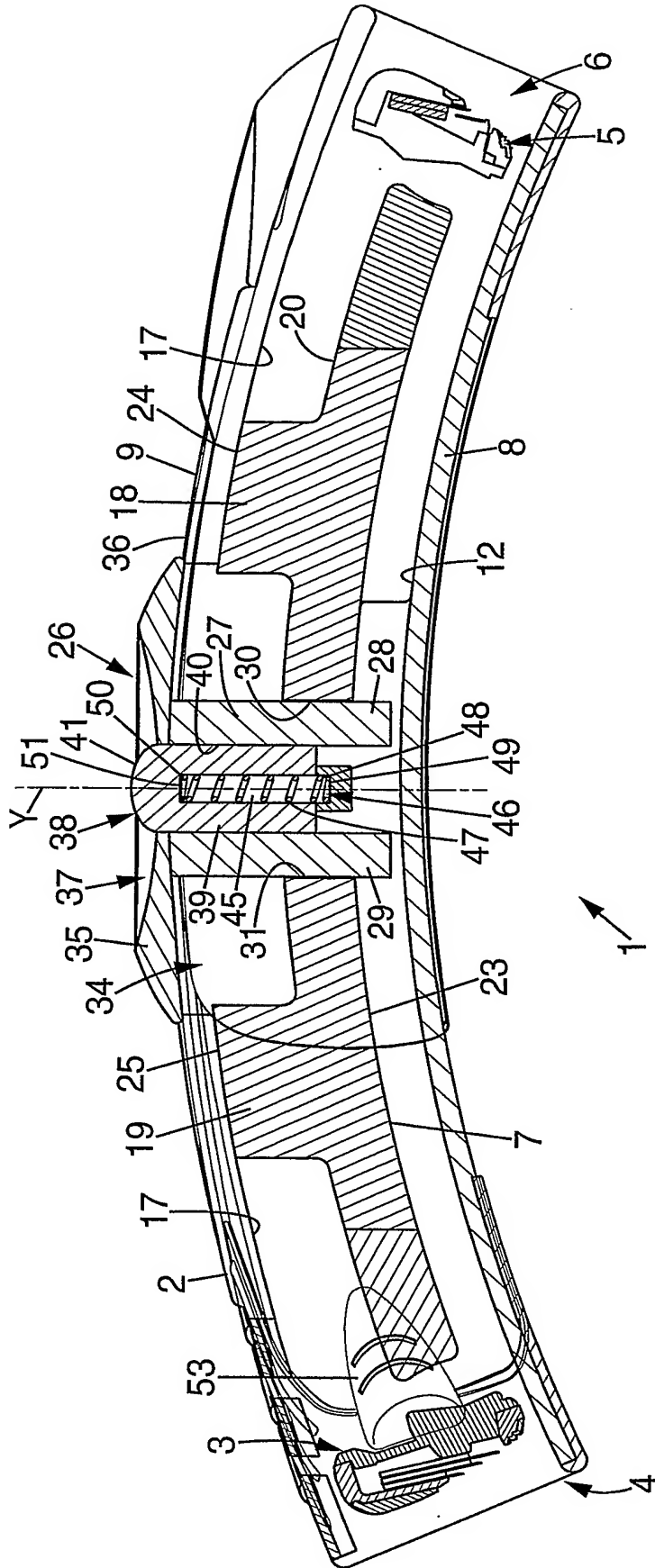


FIG. 4

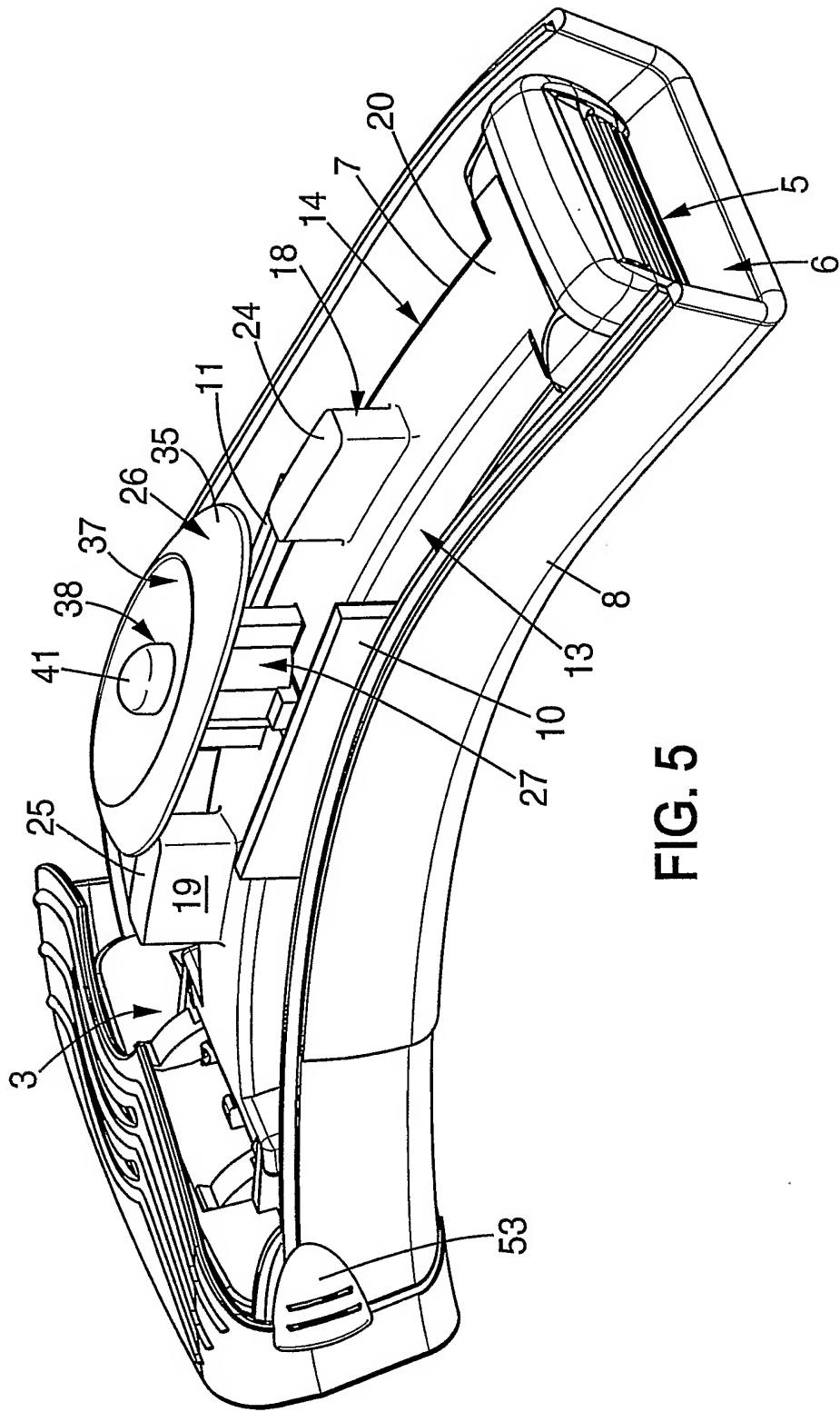


FIG. 5

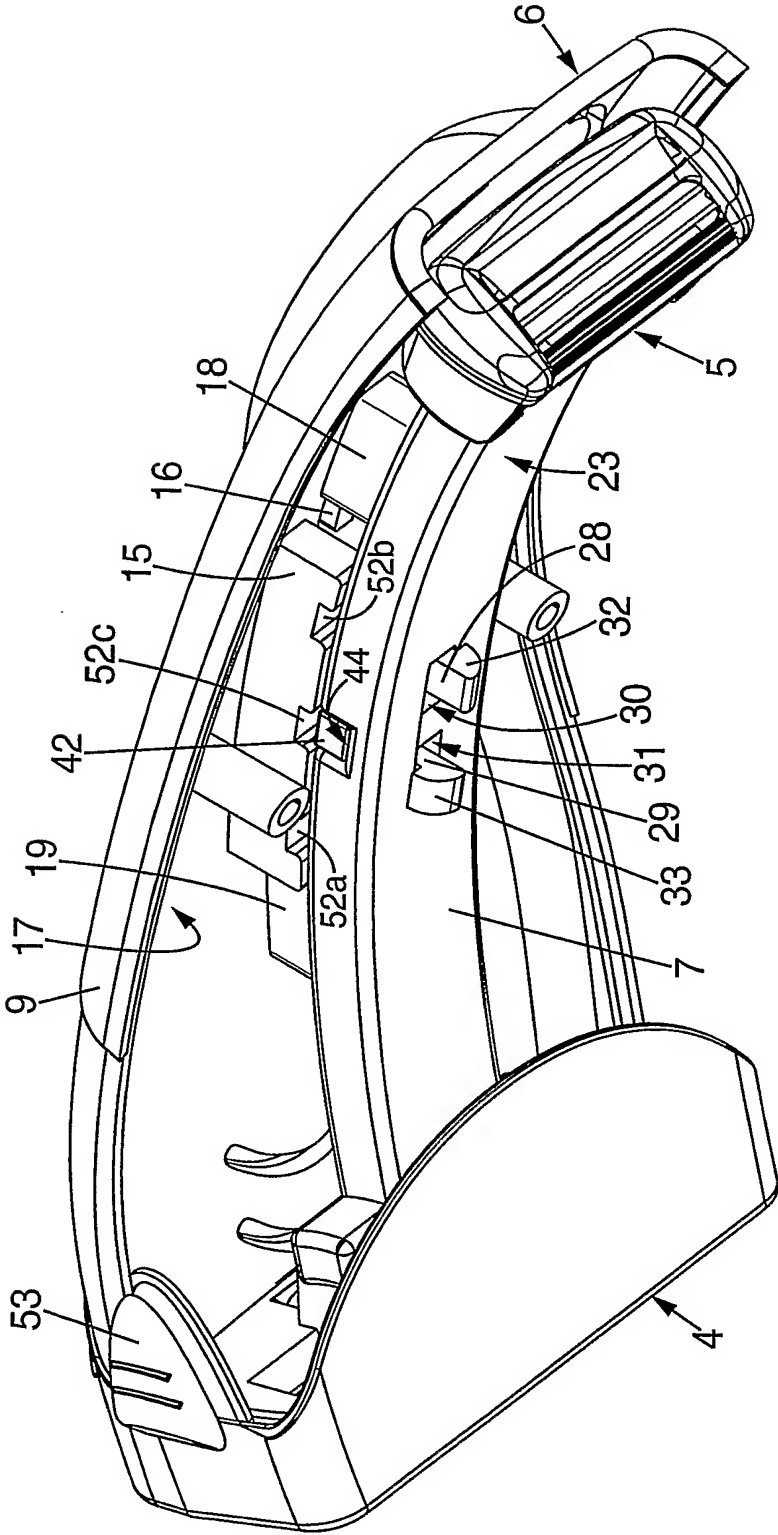
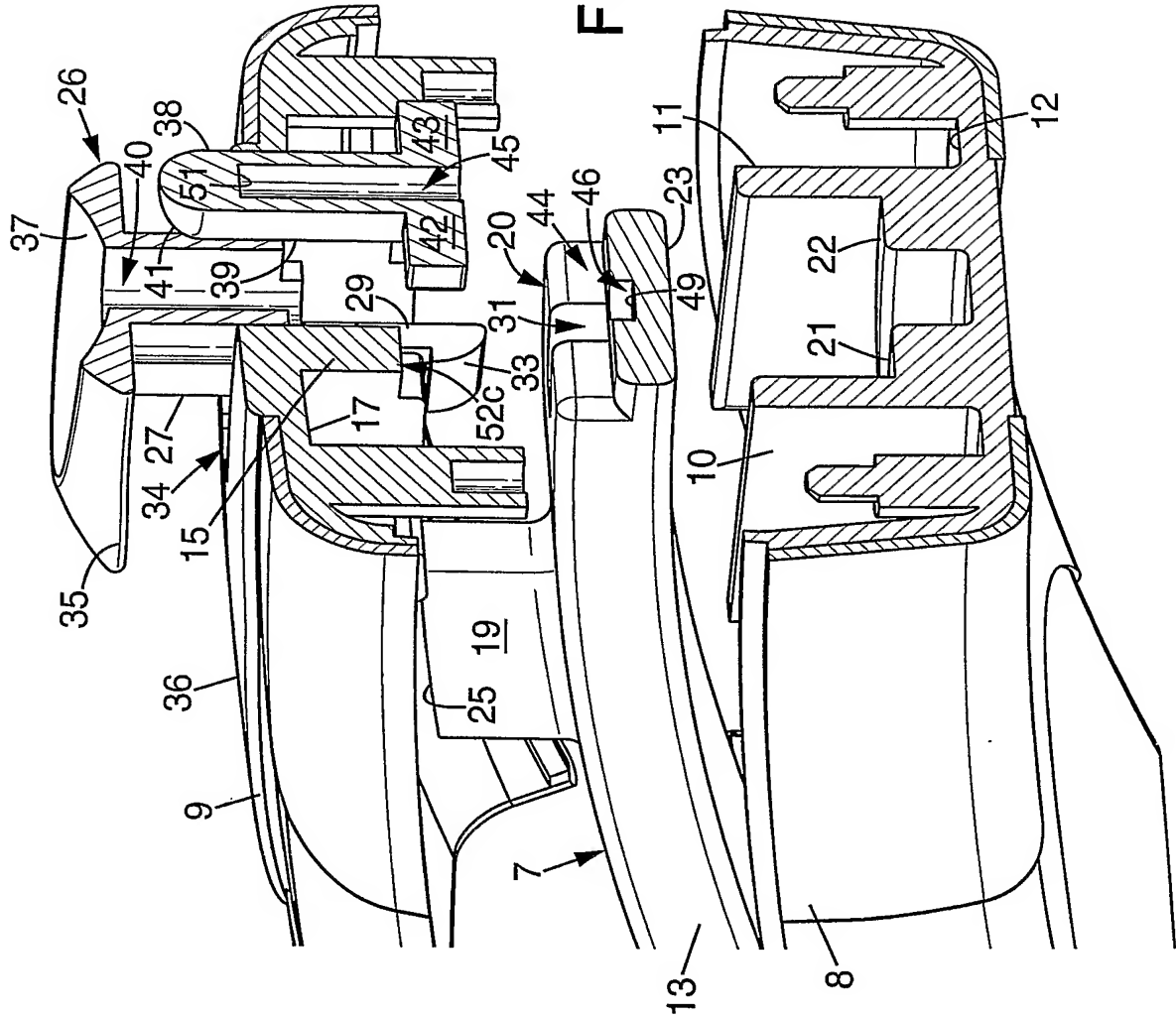


FIG. 6

FIG. 7



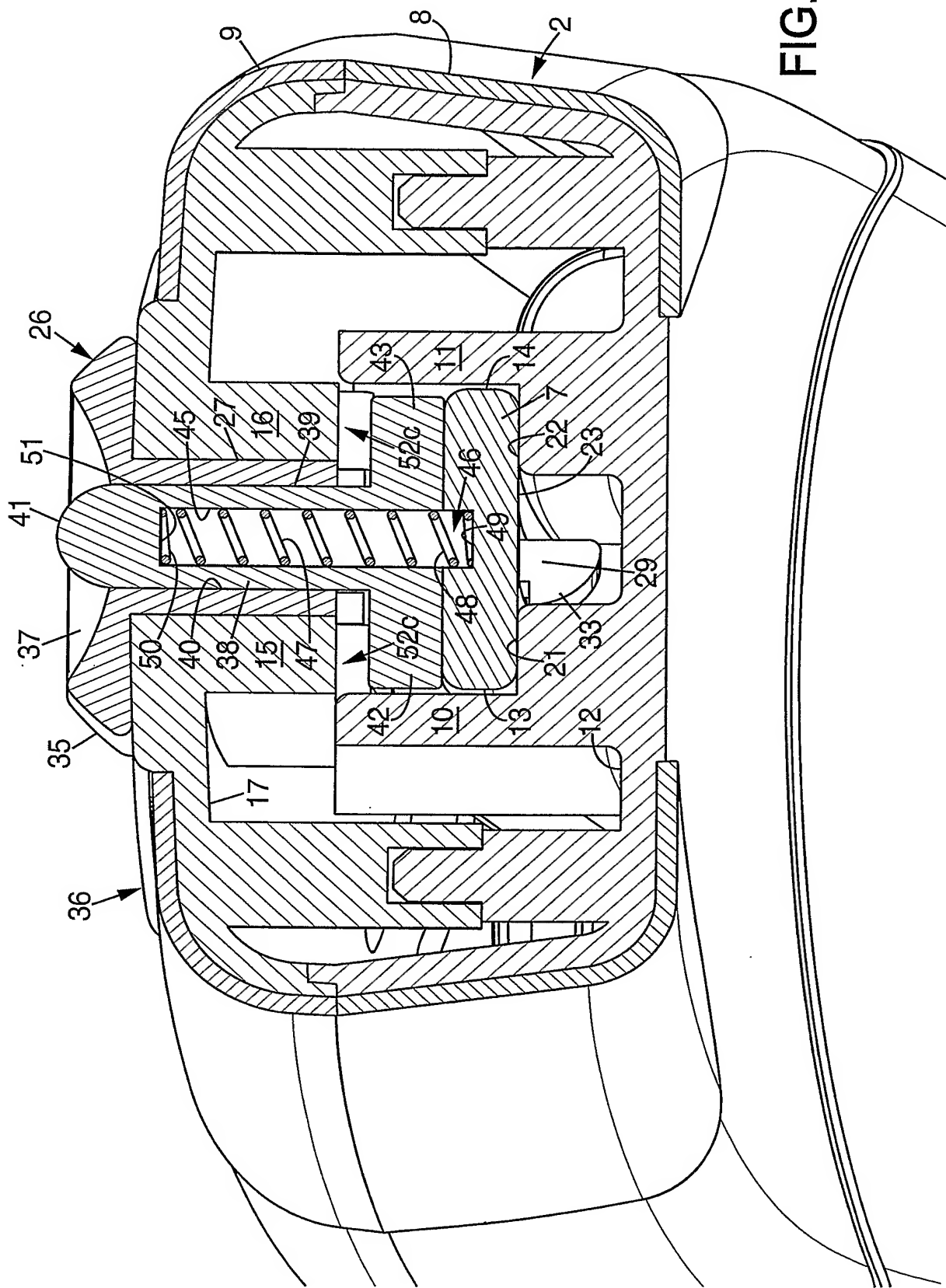


FIG. 8